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## 4.

## The Roman Sarcophagus 'Industry': a Reconsideration

BEN RUSSELL

The visual arts are rooted in handicrafts ..., a heightened manual skill grown from the exercise of manual labour as a whole. Every artist has more than a practical interest in labour.

(Stokes 1934, 109)

That a work of art can be better understood through an analysis of its mode of production is not a novel idea. The finished form of any work of art is the product of a number of manual tasks or processes, all of which have an economic, as well as artistic dimension.<sup>1</sup> Even in antiquity the economic foundations of artistic production were well-understood; as the sophist Apollonius of Tyana is said to have observed: 'all the arts that exist among mankind have different spheres of action, but all aim at money, whether little or much or simply enough to subsist on.'<sup>2</sup>

Of all the arts, stone-carving is the most physically laborious. Stone is an obstinate material, and an expensive one, difficult to shape and to transport. The appeal of stone as a medium is its durability: a stone monument is an expression of permanence. It is no surprise, therefore, that the Roman obsession with personal immortality acquired its physical form in stone. And of all Roman funerary monuments, sarcophagi are perhaps the most emblematic – they survive in large numbers and present some of the finest examples of ancient stone-carving. The apparent ease with which they can be categorised according to material, place of production and type makes them particularly useful for economic studies. Additionally, and like all stone objects, sarcophagi describe their own manufacture; the working traces on them allow for an analysis of the stages of their production, the carving techniques used, even the organisation of the workshop. Indeed, in few other areas of ancient art history are discussions of the economics of artistic production so commonplace. However, most of these discussions follow the single, highly influential model formulated by Ward-Perkins.<sup>3</sup> At its heart lies the idea that, in the period of peak demand for their products, a limited handful of massive quarry-based sarcophagus producers

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1 On this point with regard to sculpture, see Rockwell 1993, 9–13.

2 Philostratos, *Life of Apollonios of Tyana* VIII.7.3 (transl. C. P. Jones).

3 See especially Ward-Perkins 1980a and 1980b.

dominated the market, mass-producing sarcophagi in standard forms for the inter-regional export market. This newly rationalised mode of production engendered a shift away from a responsive production-to-order system towards a more efficient production-to-stock arrangement – ‘stock’ being products manufactured and stored in anticipation of an order. It became increasingly common, so the argument goes, for the individual customer to purchase their sarcophagus, nearly or entirely finished, from stock or ‘off the shelf’. This has become the background against which sarcophagi, as funerary monuments as well as works of art, are typically interpreted and evaluated in both specialist studies and volumes intended for a more general readership.<sup>4</sup>

Although, in effect, this model has become the *status quo*, it turns out to be more problematic than often acknowledged. The focus on the producer, especially the quarry-based producer, sits somewhat awkwardly with much recent work on stylistic aspects which has emphasised the role of the customer (or patron or buyer) in the process of artistic production, the decisions made by them in their choice of images, and the social context in which they were operating.<sup>5</sup> The language of modern industrial manufacturing, centred on the idea of ‘mass production’ (sometimes ‘serial production’), is especially divisive when applied to this debate; for many it conjures up images of mechanised production lines, churning out neatly identical objects; the individuality of the product is lost, as is any hint of customer choice or personalisation. Similar concerns are echoed in the words of the twentieth-century painter Albert Gleizes: ‘the new masters of production ... had no particular reason to love or respect the product, so they preferred *quantity* to *quality*.’<sup>6</sup> Modern commercial terminology need not necessarily be abandoned, but it does require definition. Too often discussion of sarcophagus production is framed in such terms without any discussion of their meaning or implications – for example, the term ‘mass production’ is regularly employed and treated as if synonymous with the notion of ‘production-to-stock’.<sup>7</sup> Since the question of their production is now so central to analyses of sarcophagi many of our assumptions warrant reconsideration. In particular, if the customer, typically the prime instigator of production, is reinstated in such discussions, a more nuanced view of the relationship between producer and consumer may well emerge.

4 Examples of the latter include Penny 1993, 44, and Stewart 2008, 37.

5 See Smith 2002, 71.

6 From a lecture delivered in Warsaw in 1932; see Gleizes 1999, 108.

7 See Ward-Perkins 1980a, 25, on the convenience of such terminology; for use of the term ‘mass production’ see, for example, Waelkens 1982, 126–7; Koch 1993, 147; Heilmeyer 2000, 129 (‘Serienproduktion’), and Stewart 2008, 37; in the context of the ‘marble trade’, see Pensabene 2002, 58 (‘produzioni di massa’).

## Industry and mass production

'Industry' in the modern sense, that is the large-scale mechanical production of a limited range of standardised objects, is unattested in antiquity.<sup>8</sup> Machines existed, of course: water-powered stone-cutting saws are a pertinent example, the introduction of which can probably now be dated to the third century thanks to the newly discovered relief from Hierapolis.<sup>9</sup> But it is difficult to identify any form of manufacturing in antiquity which was greatly revolutionised by mechanisation; and indeed stone-working remains only limitedly mechanised today.<sup>10</sup> This has dissuaded many – notably Pucci, in his study of the Arretine ceramic workshops – from talking of 'industry' at all.<sup>11</sup> However, 'industry' is not necessarily reliant on mechanisation. In fact, as Harris has argued, 'any production of artefacts in large numbers can without great discomfort be called industry.'<sup>12</sup> More important from our perspective is the organisation of this production.

In his discussion of ancient manufacturing Wilson takes this discussion further, defining 'mass production', the key feature of 'industrial production', as 'the production of very large quantities of the same artefact, or of essentially similar artefacts, by the same production means.'<sup>13</sup> He argues that mechanisation is simply a development of the process of labour division whereby each section of the production process is broken down as much as possible. The essential features of 'mass production', therefore, are the division of labour and the large-scale production of standardised objects. For Adam Smith, this division of labour, both in a society generally and within individual enterprises more specifically, was key to the problem of economic growth, leading to a level of specialisation which could greatly increase per capita productivity; in its most efficient form this division of labour is facilitated by a simplification of the stages of the productive process.<sup>14</sup> This is not how the term 'mass production' is typically used in sarcophagus studies.

8 See Manning 1987, 586 and Wilson 2008, 393.

9 On machines in the Roman world more generally, see Wilson 2002. The use of water-powered stone-cutting saws on a tributary of the Moselle is famously described by Ausonius (*The Moselle*, ll. 363–4), and late antique examples have been excavated at Ephesos (Mangartz 2006) and Jerash (Seigne 2002); the relief of just such a saw from Hierapolis was found on the short end of a sarcophagus lid (see Ritti, Grewe and Kessener 2007).

10 See Rockwell 1993, 205.

11 Pucci 1973, 261–5; for detailed criticism of the term see Love 1991, 110–53.

12 Harris 1980, 127.

13 Wilson 2008, 394.

14 Adam Smith, *On the Wealth of Nations*, I.1 (2003 edn., ed. Cannan, 10–11).

The key features of ‘mass production’, as defined by Wilson, are identifiable in a number of ancient industries – notably ceramic production and the baking sector.<sup>15</sup> But, of course, not everything that we can say about the production of a ceramic vessel or loaf of bread applies equally well to a sarcophagus. For a start, the only built structure which tells us anything about the division of labour in stone-working is the six-aisled hall near to the quarries at Chemtou, the lay-out of which, it has been argued, was arranged to facilitate the production of small statuettes and vessels.<sup>16</sup> These objects were small and could easily have been passed between workers. Sarcophagi and other large objects, on the other hand, were probably carved outside or under impermanent structures.<sup>17</sup> In addition, anyone who has carved stone appreciates how difficult and unyielding a medium it is to work in.<sup>18</sup> Stone-working is seriously labour intensive and at almost every stage of the process requires high skill levels. Just the quarrying and shaping of a medium-sized rectangular sarcophagus chest might occupy a skilled quarryman, with two assistants, for as long as a month.<sup>19</sup> This investment in labour was justified by the permanence of the end product, but it would have cost. The only sarcophagus cost known – inscribed on a late third-century, undecorated, limestone piece from Salona – is 15 *solidi*.<sup>20</sup> Based on the price of gold in the Price Edict (72 *solidi* = 1 pound of gold = 72,000 *denarii*), this sum is equivalent to 15,000 Diocletianic *denarii*, or approximately 150 late first-century *denarii*.<sup>21</sup> Even this most basic, undecorated chest in local limestone, therefore, cost roughly five times the minimum annual subsistence figure proposed by Jongman (115 *sesterces* or approximately 29 late first- or early second-century *denarii*).<sup>22</sup> In the end, the real cost of a sarcophagus was determined by its material and the level of its decoration. While Attic or Dokimeian pieces would have been out of the reach of all but the richest individuals, more affordable – though still expensive – alternatives were available. At Rome the most commonly attested purchasers of sarcophagi were

15 See Wilson 2008.

16 On this structure, see Rakob 1994, and Mackensen 2005.

17 See Heilmeyer 2004, 405: ‘a specific form of building for stone workshops is not to be expected, even in cases of mass production.’

18 I am very grateful to Martin Jennings for discussing some of these matters with me and for allowing me to work in his studio.

19 Like DeLaine 1997 and Barresi 2003, I use the figures given by Pegoretti 1863–4, 159–65 for the quarrying (40 man-hours per cubic metre for one skilled and two unskilled labourers) and shaping (12.5 man-hours per square metre for one skilled labourer) of white marble, assuming that the chest measures 2 × 1 × 1 m, and that the minimum effort involved in hollowing-out would be roughly equivalent to that for shaping.

20 See *EphEp* IV.653, which gives its measurements as 212 × 85 × 80 cm.

21 On the value of a *solidus* in the Price Edict, see Corcoran 2000, 226; the relationship between Diocletianic and late first-century *denarii* is discussed by Barresi 2003, 168.

22 Jongman 2007, 599–600.

individuals of middling to high rank in the military or civil administration; elsewhere, priests, town counsellors, and tradesmen are recorded – only rarely are persons of lowlier status identifiable.<sup>23</sup> For most of these individuals a sarcophagus would have been a massive, once in a lifetime, investment in the monument by which posterity would judge them.

The labour required in the production of a sarcophagus – or statue, or column or capital, for that matter – was of a different order of magnitude than that for almost any other commodity. However, we should be wary of assuming for this reason alone, that the production of objects like sarcophagi took place outside of the normal sphere of commercial activity. It was still in the interest of the producer to reduce unnecessary costs and waste, and to organise the work in such a way as to make it profitable. The core features of 'mass production' – the division of labour and specialisation – are just as relevant, therefore, to sarcophagus production as to any other industry.

### Modelling sarcophagus production

Ward-Perkins never defined exactly what he meant by the term 'mass production', but the contexts in which he uses it suggest that he is talking about the large-scale production of standardized objects, often in a prefabricated form, to stock.<sup>24</sup> Less emphasis is placed on the organisation of the stages of production than in Wilson's definition, and much more on the importance of prefabrication and production to stock – 'the fundamental innovation'.<sup>25</sup> Ward-Perkins was concerned above all with sarcophagus production at the various large white marble quarries which dominated the supply of high-quality stone in the first three centuries A.D. However, sarcophagus production defies simplistic modelling and before looking at the evidence from the quarries it is worth considering this quarry-based activity in some context.

Three main parties were involved in the production of a sarcophagus (Figure 4.1): the customer who paid for it, the sculpting workshop that carved it, and the quarry-based workshop that supplied the materials. In a basic scenario, the customer orders a sarcophagus from the sculpting workshop (Stage 1), this sculpting workshop orders material from the quarry-based workshop (Stage 2), this quarry-based workshop supplies the material (Stage 3), the sculpting

23 On Rome, see Dresken-Weiland 2003, 23–6; on Hierapolis, Ritti 1987, 113; on Aphrodisias, Reynolds and Roueché 2007, 150; and at Tyre, see, for example, Chéhab 1984 and 1985, no. 217–8, 248–9, 418–9, 659–60, 931–2 and 4078–9.

24 Ward-Perkins 1980b, 326–7.

25 Ward-Perkins 1980a, 25; in fact, in his own discussion of stone objects Wilson 2008, 402–05 largely follows the model established by Ward-Perkins.

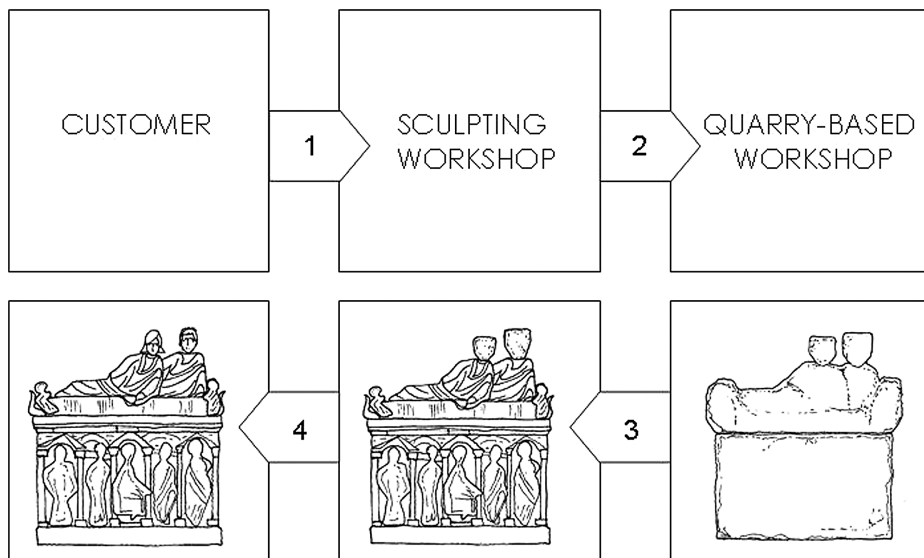


Figure 4.1: Simplified diagram showing the basic relationship between the three main parties involved in sarcophagus production. Diagram: author.

workshop carves the sarcophagus and supplies it to the customer (Stage 4). When all three parties were closely located and there was no particular time pressure such a scenario was entirely feasible and was probably even fairly routine: at least a third of all sarcophagi produced in the Roman period were carved in local stone for the local market. However, a number of variables, especially pertinent to the long-distance sarcophagus trade, complicate this arrangement:

1. The distances between these three respective parties. These could vary considerably. The Attic workshops were close to the source of their materials (Mount Pentelikon) but often far from their customers; the same is probably true of the workshops which produced 'Asiatic' sarcophagi, most in Dokimeian marble, though they rarely supplied clients outside of Asia Minor;<sup>26</sup> while the Metropolitan workshops were located far from the sources of their materials but were usually close to their core market.<sup>27</sup> Distance need not necessarily alter the arrangement of the scenario given

26 Although Waelkens has argued that the so-called 'Asiatic' sarcophagi were carved in the immediate vicinity of the Dokimeian quarries, no fully-finished examples are known from the quarries and we cannot rule out the possibility that these objects were actually carved in the nearby towns (Prymnessos, or Synnada, for example) or even elsewhere.

27 On the distribution of Attic and Metropolitan sarcophagi, see Koch and Sichtermann 1982, 267–72 and 461–70.



above but it did introduce gaps that had to be filled, either by travelling sculptors or by independent traders or other middlemen.<sup>28</sup> The location of these different parties relative to each other also determined at what stages in the production process these objects had to be transported, as Figure 4.2 shows. If Attic and Dokimeian sarcophagi had to travel, to Rome in this case, they were transported furthest once the bulk of their decoration was already completed, unless they were accompanied by a team of sculptors. For an example of an Attic sarcophagus in transit we might look to the example from the sea-bed off Punta de la Mora, near Tarragona.<sup>29</sup> Metropolitan sarcophagi, on the other hand, were usually transported furthest at the preceding stage in process, between quarry-based workshop and sculpting workshop, as the blank chests from the Torre Sgarata and San Pietro shipwrecks show.<sup>30</sup>

2. The relationship between sculpting workshop and quarry-based workshop. In certain situations these two parties might well have been operated as a single enterprise. This seems to be most probable when they were located close to each other – as at Dokimeion – and less likely when they were further apart. Either way, work was clearly divided between these two stages, as we will see.
3. The form in which the quarry-based workshops supplied material (at Stage 3). In most cases this was probably decided by the sculpting workshop – the client at this stage in the process – but certain quarry-based workshops produced material that was useable without additional work (blank chests (*Rohlingen*) or roughed-out (*Halbfabrikat*) garland sarcophagi on Prokonnesos, for example). In this case it was possible that customer and quarry dealt with each other, perhaps again through middlemen. A variant of this scenario might see customers buying blanks or roughed-out chests from the quarries themselves and then taking them to a local sculpting workshop for finishing.<sup>31</sup>
4. How customers chose to have sarcophagi finished (at Stage 4). If the design of the product allowed for personalisation, for the addition of portrait details or an inscription on chest or lid, the customer could choose to have all or some of these elements finished at the time of purchase or to leave them to

28 Examples of such individuals might include the *negotiator artis lapidariae* recorded at Cologne (*AE* 1904, 23), the *negotiator marmorarius* from Rome (*CIL* VI 33886), or the Bithynian based at the *Horrea Petroniana* in Rome who describes himself as *prōtos lithemporos*, or a 'prime stone-seller' (*SEG* IV 106).

29 For the most recent discussion of this piece, see Arata 2005, 197.

30 On these shipwrecks, Throckmorton 1969; Ward-Perkins and Throckmorton 1965.

31 The numerous examples of Prokonnesian chests from the area around the Propontis which have only small carved panels inserted into their façades were possibly produced in this way; see Koch and Sichtermann 1982, 343–6.



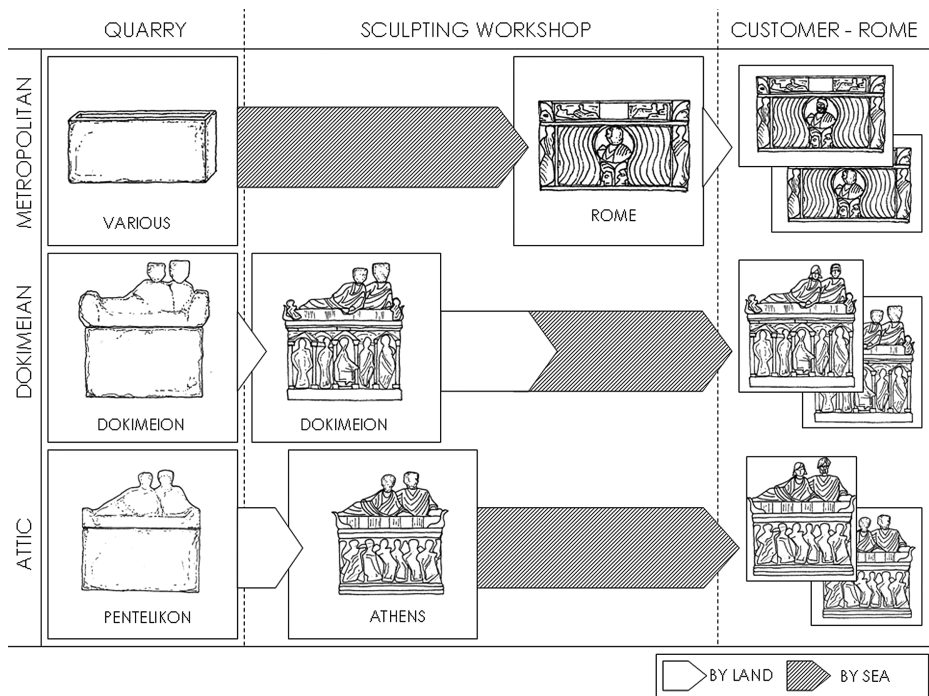


Figure 4.2: Diagram showing the three main stages in the production of three different sarcophagus types – Metropolitan, Dokimeian and Attic – and their spatial arrangement, assuming a customer based in Rome. Diagram: author.

be finished after their death. This introduces the possibility of a later stage of carving after the main commission had been completed.

The basic scenario offered above assumes that each stage of this process was commissioned; in other words both sculpting workshop and quarry-based workshop were responding to definite demand. However, three alternative forms of non-commissioned production could also have existed.

1. Instead of waiting for an order the quarry-based workshops could produce material (blank chests most obviously) to stock, in response to indefinite rather than definite demand – this is what Ward-Perkins argued for.
2. Likewise, the sculpting workshop, instead of waiting for a specific commissioner could acquire a stock of blank chests ready for further carving as required – this stock could be ordered from the quarry or possibly purchased from their stock.
3. Finally, the sculpting workshop could produce finished or near-finished objects for producers to purchase ‘off the shelf’.

Since a large number of customers for sarcophagi needed them urgently, so the traditional argument goes, this last mode of production was probably relatively common, even normal.<sup>32</sup> Most discussions of sarcophagus production have focused on this point. But despite the obvious benefit of efficiency, production-to-stock only made sense in certain situations. First, when the capital necessary to invest in stock was available. Stock is costly; it ties up capital, and producers without this capital were reliant on orders – on definite demand. The smaller the workshop, the lower the capital investment, the less feasible production-to-stock became. Secondly, production-to-stock was only profitable when the market was predictable – when a clear, albeit indefinite, market was identifiable. And the indefinite market for a chest that lacked decorative definition and could thus be put to use in numerous ways would always be greater than that for a fully-finished chest. The feasibility of production-to-stock, therefore, depended both on the scale of production – and the amount of capital investment – and the relationship between producer and consumer.

### Scale

How large-scale was sarcophagus production? Between 12,000 and 15,000 sarcophagi of all types datable to the second and third centuries are known. If, as Koch has argued, the surviving number account for between only 2 % and 5 % of the original number, then we are looking at very rough production totals of between 300,000 and 750,000 for the years of peak production (defined by Koch as 120 to 310).<sup>33</sup> The lower total gives an annual average of 1,579 sarcophagi, the higher an average of 3,947. In the years of peak production one should imagine figures of up to ten times these. These are high figures, of course, and probably too high. Away from those sites largely obliterated by later settlement, a far higher proportion of sarcophagi have probably survived. Unlike statues, sarcophagi remained functional, and continued to be used and re-used.<sup>34</sup> A more conservative average survival rate, therefore, might be in the order of 20 %.

These totals mean little, however, unless they can be broken down by individual sculpting or quarry-based workshop; only in this way can the scale of

32 See Koch and Sichtermann 1982, 613–4, and Stewart 2008, 37; for a full discussion of this last point with regard to children's sarcophagi, see Huskinson 1996, 79–80.

33 Koch 1993, 1.

34 Greenhalgh 1989, 189–90: sarcophagi 'were prized by later centuries as a very symbol of *romanitas*'.

production at individual establishments, and their productivity, be assessed.<sup>35</sup> It is customary in ancient art history to group together objects with shared characteristics as products of the same workshop or group of workshops, often with topographical identifiers – Attic, Asiatic, Metropolitan.<sup>36</sup> Material analysis and finds from the quarries have helped to pin down some of these vague identifications. We can now be sure that the majority of the ornate columnar sarcophagi traditionally described as ‘Asiatic’, for example, were carved from Dokimeian marble.<sup>37</sup>

Only occasionally, however, is it possible to break down these broad categories further. This has been attempted for Attic sarcophagi.<sup>38</sup> These objects are the products of a limited body of highly skilled sculptors trained in a common artistic tradition and there is widespread agreement that a number of distinct workshops were involved in their production. From the number of extant pieces we can acquire some indication of the scale of this production and the number of sculptors involved. If we use Koch’s estimate of 1,500 preserved Attic sarcophagi (itself probably on the high side) and a 20 % survival rate then these workshops might have been producing as many as 75 sarcophagi annually (over 100 years).<sup>39</sup> Unfortunately labour figures for sculpting, of the kind documented by Pegoretti for architectural carving, are hard to come by.<sup>40</sup> Wiegartz, however, has estimated that it would require 1,000–1,200 man-days to produce a fully-finished Attic sarcophagus with a *kliné* lid.<sup>41</sup> This figure – equivalent to 5–6 large (1 m high) Corinthian capitals using Pegoretti’s calculations – is justified by the detail of the carving on both chest and lid, the depth of the relief, and the extra effort involved in hollowing-out.<sup>42</sup> Assuming, therefore, that four sculptors working together could have produced an Attic sarcophagus in a year, a minimum workforce of 300 skilled sculptors might reasonably be conjectured. This is a large number but divided between multiple workshops – Giuliano and Palma tentatively identify at least 21 individual sculptors or working groups, for example – it becomes much more reasonable

35 On this point, see Garnsey and Saller 1987, 52, who argue that industry in the Roman world ‘could achieve expanded output (not to be confused with higher productivity) merely through the multiplication of small producers working in isolation or in integrated enterprises.’

36 On this problem generally, see Heilmeyer 2004.

37 Waelkens 1982 and 1988.

38 See Giuliano and Palma 1978, 11–25.

39 Koch 1993, 110.

40 Pegoretti 1863–4; the most detailed carving work mentioned by him is for Corinthian capitals.

41 See Wiegartz 1974, 364–6; Koch 1993, 110, uses these figures.

42 See Pegoretti 1983–4, 397–9.

and more in line with what can be observed in other areas of the Roman economy.<sup>43</sup>

In his discussion of the Roman ceramic industry, Peacock argues that most Roman pottery was produced at single workshops, by single artisans and their assistants, but it was often beneficial for artisans to group together in larger nucleated industries in order to take advantage of access to raw materials, labour, transport or a particular market.<sup>44</sup> Based on modern parallels, Peacock suggests that most workshops would have contained fewer than twelve workers; for the Greek world, Hasebroek proposed a figure of ten to fifteen workers.<sup>45</sup> The stage up from the workshop, the manufactory, is marked 'by the size of its premises, the degree of specialisation in the product, the scale of output, and by the evidence of worker specialisation.'<sup>46</sup> But even at the important centres of ceramic manufacture, such as Arezzo or La Graufesenque, large-scale production was apparently spread across groupings of individually small workshops, and only occasionally anything resembling manufactories.<sup>47</sup> In the broader context of Roman manufacturing it seems most likely, therefore, that Attic sarcophagi were produced by a number of 'nucleated workshops', grouped together to take advantage of the high-quality marble of Mount Pentelikon; we might even posit relationships between workshops, perhaps through apprenticeships or family links.<sup>48</sup> Substantial capital investment in the stone-carving industry did exist – at Aphrodisias, for example – but was probably irregularly spread.<sup>49</sup>

These parallels from other sectors of the economy should also encourage us to challenge, if not necessarily reject, other assumptions about the size of sarcophagus workshops. In Phrygia, for example, Waelkens has argued that the stylistic homogeneity of the sarcophagi produced in Dokimeian marble identifies them as the products of a single large 'workshop', located at the

43 Giuliano and Palma 1978, 11–25.

44 Peacock 1982, 8–11; see also Kehoe 2007, 561: 'industries tended to be organised on a modest scale'.

45 See Hasebroek 1965, 75.

46 Peacock 1982, 9.

47 See Fülle 1997, 133–9, and Wilson 2008, 397–8.

48 Like so many other specialist crafts stone-working was probably often a family affair; on this point, see Lucian, *The Dream or Lucian's Career* 7–8.

49 A certain M. Ulpius Carminius Claudianos, a member of the local elite at Aphrodisias, provided many donations of both buildings and statues to the city in the second century; the statues, in particular, are noted as having come from 'his house' – *oikothēn kateskeuakota* – which might well indicate a workshop or marble-production facility, a hypothesis supported by the fact that the Carminii were from Attouda, over the hill beyond the quarries (see *CIG* 2782). In fact, Reynolds 1996, 122 has hypothesised that many benefactors at Aphrodisias were also quarry-owners.

quarries.<sup>50</sup> The extant Dokimeian sarcophagi, however, might represent as many as 1,500 originals (using a 20 % survival rate; 6,500 using Koch's figure of 5 %).<sup>51</sup> This equates to an average annual production of 12 pieces over the 130 years of production (50 with the 5 % figure), with up to double this number in periods of peak demand like the 160s.<sup>52</sup> Estimating that the more ornate columnar Dokimeian sarcophagus took up to 1,500 man-days to carve, five sculptors working together could probably have finished one sarcophagus a year, necessitating a minimum workforce of 60 skilled sculptors (250 with the 5 % figure). This is a large number and, though Waelkens' well-constructed argument cannot be disproved, the idea that production of these sarcophagi was split between multiple units operating in a shared artistic tradition but without any overriding direction might fit more plausibly with patterns observable elsewhere. The absence of finished sarcophagi close to the quarries, as already noted, might suggest that these workshops were located elsewhere, possibly in the nearby cities, or alternatively that they were mobile: it is entirely likely that sculptors from Dokimeion travelled with their materials, finishing commissions in situ.<sup>53</sup>

The idea of nucleated workshops certainly seems most appropriate in the case of Rome. Approximately 6,000 metropolitan sarcophagi have been identified, the vast majority in and around the capital though others were exported to the western Mediterranean.<sup>54</sup> The range of marbles used by these workshops (Prokonnesian, Luna, Thasian, Ephesian, Parian, Pentelic), alongside the stylistic variety observable across all types of metropolitan sarcophagi, make it likely that production was again spread across numerous small-scale workshops and was never dominated by a single mega-producer; on this there has been general agreement.<sup>55</sup> But how large the quarry-based workshops

50 Considering the evidence for imperial involvement at Dokimeion, Waelkens 1982, 124–127 suggested that this workshop was probably also imperially-run; this proposal received initial support from Fant 1985, 661, though now he doubts whether imperial involvement in sarcophagus production is likely. In practice, the white marble at Dokimeion never seems to have attracted imperial attention like the *pavonazzetto* – quarry-inscriptions are rarely found on blocks of white marble, the quarrying of which was probably contracted out to private enterprises.

51 This calculation is based on the 311 examples catalogued by Wiegartz 1965; Ferrari 1966; Waelkens 1982; Koch 1989; and Özgan 2003.

52 Note, however, that only around half of the examples listed in the above catalogues are given dates and some of these are dubious.

53 Dokimeion was certainly an important artistic centre and Dokimeian sculptors, like Athenians and Aphrodisians, are found elsewhere: see Hall and Waelkens 1982; McLean 2002, no. 45; and Pensabene 2007, 297–9.

54 Koch 1993, 94, and Walker 1990, 10.

55 On the materials used, see Walker 1990, 15–36, and Van Keuren et al. (this volume); see also Koch 1993, 13–14, and for the later period, Koch 2000, 79–80.

supplying the metropolitan sculptors were less agreed upon. The arguments discussed above with regard to the Attic and Dokimeian workshops apply equally to quarry-based workshops in other large white marble quarries. Epigraphic evidence for ownership is limited and the layout of many of these sites suggests a decentralised process.<sup>56</sup> These factors suggest that it would be wrong to assume, *a priori*, that individual quarries were worked by single large workshops.

### Quarry-based production

Ward-Perkins' model of the imperial marble trade was centred on the idea of 'a completely new quarry-consumer relationship, based upon bulk-production at the quarries and upon stock-piling'.<sup>57</sup> The prefabrication of objects in standardised forms was 'a natural development' of this shift in focus, he argued, which in turn encouraged specialisation.<sup>58</sup>

Sarcophagus evidence lies at the heart of this model. Finds of roughed-out chests at the quarries show that a certain amount of work was undertaken on these objects before they were exported and that particular forms of sarcophagi can be linked to specific quarries. On this basis typologies can be constructed, the most comprehensive being those of the Asiatic garland sarcophagi.<sup>59</sup> The distinct roughed-out form of these pieces, which became valued in its own right, varied subtly between production centres, allowing for five main workshops to be identified – at Prokonnesos, Ephesos, Aphrodisias, somewhere else in Karia, and somewhere in the Hermos valley (Figure 4.3).<sup>60</sup> Roughed-out chests and lids on Prokonnesos, preserved in the necropolis as well as in the quarries, show that producers on the island also specialised in the shaping of four other chest-types: two sizes of plain-sided ones, one version with a lower moulding, and another with upper and lower mouldings (Figure 4.4).<sup>61</sup> Like the roughed-out garland sarcophagi, all of these types were useable as they were, without further

56 Quarry inscriptions are much scarcer on white marble than coloured marbles: inscriptions attesting to imperial involvement are found on blocks of Parian (Pensabene 1994, 121–2), blocks of Prokonnesian, but only in the Byzantine period (Asgari and Drew-Bear 2002), and also on blocks of Luna, but only ever alongside other inscriptions attesting to private or municipal quarrying (see Dolci 2004, 59–61, and Pensabene 2002, 15). On this point with regard to the Thasian quarries, see Marc 1995.

57 Ward-Perkins 1980a, 25.

58 Ward-Perkins 1980b, 327.

59 See Asgari 1977, and Işık 1992, 1998 and 2007.

60 The discovery of an abandoned roughed-out garland sarcophagus in the quarry at Selvioglu, near Uşak, might indicate the origin of the type used in the Hermos valley: Pralong 1980, 254–5, Figs. 4a and 4b).

61 Asgari 1990, 110–15; see also Koch and Sichtermann 1982, 486 (Fig.10: 2a and 2b).





Figure 4.3: Various types of Ephesian garland sarcophagi. Ephesos. Photograph: author.

ornamentation, and were certainly valued in this form. But these chests typically received some level of further carving at sculpting workshops elsewhere around the Mediterranean, where they could be decorated according to local tastes.<sup>62</sup> More recently an additional category of roughed-out chests has been identified in the quarries at Vathy and Saliari on Thasos. This round-ended, so-called *lēnos* (ληνός) or tub-shaped type with projecting bosses was shipped primarily to Rome, where the bosses could be carved into either lion-head protomes or relief lions with raised heads, two of the canonical forms of the so-called ‘lion sarcophagus’ (*Löwensarkophag*).<sup>63</sup>

These finds are important for our understanding of the dynamics of production. Certain quarry-based workshops specialised in the production of roughed-out stone objects, sarcophagus chests and lids amongst them, and this

62 Major concentrations of sarcophagi in Prokonnesian marble which were carved by local workshops can be identified in the Balkans (Cermanović 1965; Cambi 1998, 169), northern Italy (Gabelmann 1973), and at Tyre (Ward-Perkins 1969; Koch 1989). A part-finished example from Constanța (ancient Tomis) shows how these local decorative schemes, in this case a *tabula* framed by *genii*, were cut into the side of these plain Prokonnesian chest-types (see Alexandrescu-Vianu 1970, no. 15).

63 On Thasos: Koželj et al. 1985, and Wurch-Koželj and Koželj 1995. On the sarcophagi from which these types were carved, see ASR VI, 1.





Figure 4.4: Plain-sided and roughed-out garland sarcophagi from the necropolis at Saraylar, on Prokonnesos (modern Marmara Adası). Photograph: author, published with the kind permission of Professor Nuşin Asgari.

suggests further specialisation at the workshops that received these roughed-out objects. That different phases of this process were completed in different locations indicates a geographically differentiated division of labour.<sup>64</sup> Labour could be divided further at each point in the process. Between quarryman and carver at the quarry and between any number of sculptors at the sculpting workshop – Eichner distinguishes nine stages in the carving process between receipt of a roughed-out chest and final polish.<sup>65</sup> Stone-working is highly methodical and it makes sense to divide the ‘process’, as Rockwell calls it, into different stages so as to avoid risk of over-cutting.<sup>66</sup> Part-finished sarcophagi help to reveal these stages. However, the objects alone cannot tell us whether these working stages were divided between different individuals or different

<sup>64</sup> See Wilson 2008, 405–06.

<sup>65</sup> Eichner 1981, 103–104; see Koch 1993, 32–33, for a similar reconstruction. For discussion of this point with regard to statue production, see Boschung and Pfanner 1988, 14 (Fig. 7), and on Corinthian capitals, Asgari 1988, 122 (Fig. 1); for labour division at the quarry, Rockwell 1993, 96.

<sup>66</sup> Rockwell 1993, 12–13.

locations. The smaller the workshop the less likely this was, not simply because fewer workers were employed but because the level of production could not sustain it; what did eight specialist workers do while the ninth finished his stage unless there was a queue of pieces waiting to be finished?<sup>67</sup> Overall, therefore, the broad division of labour between quarry workshop and sculpting workshop is significant, and must have encouraged specialisation; it was probably also accompanied by division of labour at each of these stages, but the articulation of this system depended on the size of the workshop and the number of personnel. Again the question of scale is paramount.

All this being said, we should be wary of getting carried away by the idea of quarry-based specialisation – the idea, in Ward-Perkins' words, of 'certain quarries producing certain particular shapes, and in some cases even certain particular designs.'<sup>68</sup> The typological approach, in particular the focus on standardisation, can provide a false sense of uniformity. As already noted, a single 'quarry' was probably associated with numerous independent workshops. And at the same time we cannot rule out the possibility that individual sculptors or groups of sculptors travelled to the quarries to carry out commissions or select materials, as was customary in later periods; for large commissions the same individuals might have been present at every stage of the production process.<sup>69</sup> In fact, a variety is visible in quarry-based production that may well reflect the presence of a number of workshops or individual sculptors working or responding to orders in different ways. This is clear on Prokonnesos, where Asgari's on-going research has highlighted the range of objects which received shaping on the island prior to export. Alongside the chest types traditionally identified as 'Prokonnesian' it is clear that several varieties of roughed-out *lēnos* chests, finished to different degrees, were also shaped on the island; a strigillated example in the open-air museum at Saraylar, which is due to be published in full by Asgari, shows that these objects were sometimes carved further before export.<sup>70</sup> That sculptors capable of detailed work were present on the island is additionally shown by a single gable-lid with a roughed-out portrait bust on one

67 Adam Smith (*On the Wealth of Nations*, III (2003 edn., ed. Cannan, 27) made this point explicitly: 'as it is the power of exchanging that gives occasion to the division of labour, so the extent of this division must always be limited by the extent of that power, or, in other words, by the extent of the market.'

68 Ward-Perkins 1980a, 25.

69 See Klapisch-Zuber 1969, 62; it is quite normal today for sculptors from outside of Italy to travel to Carrara and work there on large commissions for at least part of the year. Dio Chrysostom certainly travelled to the local quarries to oversee the selection of stone when paying for a new stoa at Prusa (*Orations* XL, 7).

70 All of these objects will be discussed in more detail in Nuşin Asgari's forthcoming monograph.

*acroterion*, a decorative scheme common in northern Italy and the Balkans.<sup>71</sup> Analysis of finished sarcophagi at Rome and elsewhere helps to fill in the picture provided by the material from the quarries. Around half of the *lénos* sarcophagi tested by Walker were carved in Prokonnesian, as were over half of the metropolitan sarcophagi analysed in the British Museum.<sup>72</sup> As reported in this volume, the analysis of twenty sarcophagus chests and five lids from the Museo Nazionale Romano revealed the use of Prokonnesian for thirteen chests and one lid, compared to Luna for three chests and four lids, and Pentelic for four chests.<sup>73</sup> Roughed-out types suitable for the production of these metropolitan sarcophagi are not represented on Prokonnesos but this does not mean that they were not shaped on the island before export. Equally, the Pentelic chests identified at Rome show that different sculpting workshops, specialising in very different types of product, dealt with the same quarries – not all Pentelic marble ended up as Attic sarcophagi. Recognising this kind of variety is key because it casts doubt on the link drawn by Ward-Perkins and others between the finds from the quarries and the controversial notion of production-to-stock. The more types of different products produced the less likely it was that they were produced-to-stock. In other words, this variety suggests a more nuanced picture, of multiple workshops, at or near the quarries, responding separately to the demands of a range of clients, themselves mainly sculpting workshops located elsewhere.

The crucial question here is where the stimulus for production came from. Ward-Perkins regarded it as 'a natural development, convenient both to the suppliers and to the far-off customers', that the quarries should introduce a degree of 'standardisation' and 'prefabrication'.<sup>74</sup> The quarries, consequently, are seen as the main instigators. However, 'standardisation' and 'prefabrication' are problematic terms, as too is the link drawn between them and the notion of production-to-stock. The 'pre-' of 'prefabrication', for example, suggests that these objects were shaped before they had a buyer.<sup>75</sup> But, whether a commission or a stock piece, it made good sense to reduce the weight of any object before export.<sup>76</sup> The hollowing-out of sarcophagi was especially worthwhile in this regard, reducing its weight by half – 2,500 kg for a chest measuring 2 × 1 × 1 m.<sup>77</sup> The practice of shaping objects prior to export additionally reduced the

71 Asgari 1990, 113 (Fig. 6).

72 See Walker 1985, 61, and 1990, 15–36.

73 Van Keuren et al. (this volume).

74 Ward-Perkins 1980b, 327.

75 Ward-Perkins 1980b, 327.

76 Klapisch-Zuber 1969, 69, and Manning 1987, 594–5; marble weighs between 2,563 and 2,700 kg/m<sup>3</sup>, granite around 2,700 kg/m<sup>3</sup>, and limestone around 2,620 kg/m<sup>3</sup>.

77 See Wurch-Koželj and Koželj 1995, 45, for similar calculations for the round-ended chests on Thasos.

likelihood that flaws concealed within the block would be passed on to the client; and, as Conlin has remarked, since stone is at its softest, and easiest to carve, when initially quarried, it also made sense to carry out as much bulk shaping at this stage as possible.<sup>78</sup> This shaping took place even when quarry and customer were closely located and when the piece was a commission. Even though 90 % of the catalogued sarcophagi at Hierapolis in Phrygia were carved from the local travertine, they were still supplied in roughed-out form from the quarries.<sup>79</sup> And these were not stock pieces: decorated examples from the city's necropolis show that sides on which relief decoration was planned were shaped at this early stage to be thicker than sides on which no decoration was planned; in other words, the desires of the client were known from the earliest stage in the production process. Roughed-out sarcophagus chests have been identified in a number of other quarries which served only a local market.<sup>80</sup> At Dokimeion, where the sarcophagus workshops operated in the immediate vicinity of the quarries, chests and lids still received some shaping at the quarry-face before being moved: this was simply a stage in the working process that made the object more moveable.<sup>81</sup>

Equally problematic from this perspective is the concept of 'standardisation'. For though the term itself refers to a conscious and directed process, the similitude of a given class of object, in form or dimensions, need not necessarily result from choices made by their producer (the 'quarry' in Ward-Perkins' model) and need not automatically indicate a production-to-stock system. There was, in fact, massive consumer demand for such objects in what might be regarded as 'standard' forms: this is arguably one of the most striking characteristics of Roman art and architecture.<sup>82</sup> This was not because this was 'a society that placed no value on innovation, originality or progress', as Cornell put it, but arguably because these objects were required to function in very specific ways in a social context which had an accepted visual language.<sup>83</sup> In other words, objects produced in standard forms could just as easily be commissions as stock pieces.

A large quarry-based workshop, with access to the necessary capital, could quite reasonably have produced blank chests to stock without worry of the market for them evaporating. As we have seen stock production was feasible in

78 Conlin 1997, 36.

79 Vanhaverbeke and Waelkens 2002; see Ronchetta 1987, 105, for a roughed-out example still attached to the quarry-face.

80 On Brač, see Cambi 1998; on Aphrodisias, Işık 2007; and on the French quarries, Bedon 1984, 116 and Fig. 19 which lists seventeen sites (though he is unspecific about dates).

81 For roughed-out lids and chests, see Fant 1985, and Waelkens 1988.

82 On this point with regard to statue types, see Daehner 1997, and Trimble 2000.

83 Cornell 1987, 32–3.

such a situation. It is entirely possible that certain workshops on Prokonnesos or even Thasos did operate in this way. However, there is no direct connection between quarry-based shaping, standardisation and production-to-stock. Equally, even objects of apparently neutral or multi-purpose form – like blank sarcophagi chests – were not necessarily produced to stock. The cargo of the San Pietro shipwreck shows this well. This ship, wrecked in the early third century, was carrying twenty-three Thasian sarcophagi of three main types: ten *lēnos* sarcophagi (seven with projecting protomes, three without), nine rectangular chests, and four rectangular chests with round-ended interior cavities.<sup>84</sup> Six of these were stacked in pairs, a smaller one within a larger one to economize on space during transit; a further six were produced in joined pairs, for separation after arrival; while at least two had lids attached to one of their long sides. As Ward-Perkins and Throckmorton originally noted, the fact that one of these lids was not meant for the sarcophagus to which it was attached but for a smaller chest in the cargo showed that these two pieces at any rate were destined for the same workshop.<sup>85</sup> This also proves that this one chest at least was not a stock piece. The same can be proposed for the examples joined in pairs, which would require significant additional work to separate, but were structurally stronger in this form. Overall it seems unlikely that the range of chest-types from the San Pietro wreck could have been supplied from stock, especially considering the different sizes represented – essentially three of each type. This cargo probably represents at least one large order of material placed by a workshop, or multiple workshops, at Rome with the quarries on Thasos.

Instead, therefore, of thinking of quarry-based workshops as proactive enterprises – setting fashions rather than responding to them – it is perhaps more realistic to see them by and large as reactive ones. Production at the quarries responded to the demands of the client – either the customer directly or a sculpting workshop. The concentrations of particular sarcophagus types in particular regions – Prokonnesian garland sarcophagi at Alexandria, Attic sarcophagi at Cyrene – is more plausibly explained as resulting from decisions made by the customer or local workshops at these locations than the quarries.<sup>86</sup> Certain quarry-based workshops clearly specialised in producing certain objects, typically partially shaped before export, but this does not mean that the stimulus for production lay with them.

<sup>84</sup> See Alessio and Zaccaria 1997, 215 (Fig. 2).

<sup>85</sup> Ward-Perkins and Throckmorton 1965, 205–207.

<sup>86</sup> On the apparent selective focus of different quarry-based workshops, see Ward-Perkins 1980a, 40–9.



## Production and the customer

The feasibility of production-to-stock already discussed with regard to the quarry-based workshops applies equally to the sculpting workshops that dealt directly, in most cases, with the customer. A large workshop at Rome, with the necessary capital, could import a cargo of blank chests like that found off San Pietro with little risk. They could be kept in stock in this form ready for an order to be placed and the indefinite market was such that any workshop could be confident of selling them. Even the roughed-out pieces that had a more defined form – like the *lēnos* sarcophagi or the roughed-out garland sarcophagi – could easily be altered into a different form if necessary.<sup>87</sup> Any further work carried out on these roughed-out chests by the workshop that was not in response to definite demand might have made them better able to respond quickly but it also added risk, since it effectively reduced the market for the product. If the workshop was specialised, and if it was known for a particular product, then its market was already more defined and this was not as problematic. An obvious example might be a workshop specialising in strigillated sarcophagi. Several part-finished strigillated sarcophagi from Rome show that the main strigillated panels could be finished before any figured decoration was added (see Figure 4.5). The workshop could still complete much of the work necessary without depriving the customer of choice over the key features of their monument.<sup>88</sup>

This is the context in which the well-known corpus of ‘unfinished’ or blank portraits are usually discussed.<sup>89</sup> One common explanation of this phenomenon links it to the idea of production-to-stock: sarcophagi with standard motifs were produced near-finished to stock with such portraits left for personalisation, but because these objects were often needed quickly, following a sudden death, these portraits were never worked. Of course, the more formulaic the decoration and the more predictable the market the more feasible it was for a workshop with sufficient capital to produce a sarcophagus with blank portrait to stock. In third-century Rome, when the market for sarcophagi reached its zenith, such a situation is plausible. However, this does not mean that blank portraits indicate stock pieces. Indeed a number of arguments can be made against this connection. First, blank portraits are found on sarcophagi that were clearly

87 See Ward-Perkins and Throckmorton 1965, 205, on the sarcophagus from Acilia carved from a roughed-out *lēnos* sarcophagus; for altered garland sarcophagi, see Adriani 1961, no. 24 (Fig. 65–72), Asgari 1977, 332 (Istanbul A), and Mendel 1912–1914, no. 26.

88 A sarcophagus in the collection of the *Museo Nazionale Romano* with a delineated *clipeus* medallion could also be interpreted in this context (see Giuliano 1984, no. IX.4).

89 Unfinished here warrants inverted commas because of the recent suggestion that some of these portraits were perhaps never meant to be finished; see Huskinson 1998, 155.

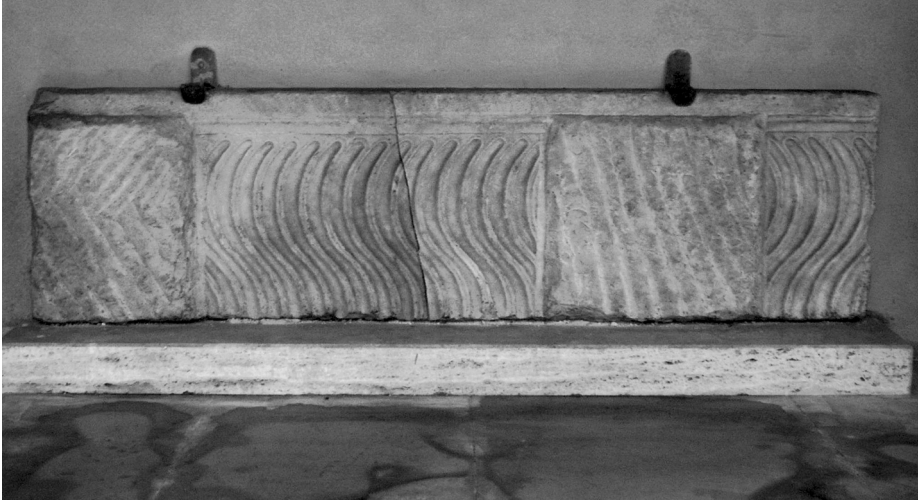


Figure 4.5: Fragment of a strigillated sarcophagus with roughed-out bosses, now in San Paolo fuori le Mura, Rome. Photograph: author.

commissions. The central figure on the front of the chest of the Portonaccio sarcophagus, for instance, has a blank portrait, and four others are incorporated into the biographic scene on its lid.<sup>90</sup> At the other end of the empire, at Aphrodisias, the sarcophagus of Aurelia Tate has two blank portraits on its façade alongside a central *tabula*, fully-inscribed, and a small depiction of a blacksmith's workshop (Figure 4.6).<sup>91</sup> Secondly, blank portraits are found on sarcophagi at a number of sites where the market appears too small to have sustained production to stock. At somewhere like Aphrodisias, with an estimated population living within the fourth-century wall circuit of around 15,000 inhabitants, the market for sarcophagi was considerably smaller than at Rome. Nevertheless, the majority of sarcophagi from Aphrodisias display some level of un-finish and frequently incorporate blank portraits.<sup>92</sup>

What the Aphrodisian material clearly shows is that sarcophagi were not simply functional containers for corpses. They were monuments, more akin to tombs than coffins.<sup>93</sup> Most were purchased during the lifetime of those commemorated.<sup>94</sup> As the sarcophagus of Aurelia Tate shows they were often commissioned with spaces for portraits that could be finished at the time of

90 Koch and Sichtermann 1982, 92.

91 Smith 2008, 374–6.

92 See Smith 2008, 347.

93 On the words used to describe tombs in the Greek East, see Kubrińska 1968, 32–57.

94 For Kalchedon, see Asgari and Firatlı 1978, 34, and for Aphrodisias, Reynolds and Roueché 2007, 149.





Figure 4.6: Sarcophagus of Aurelia Tate. Aphrodisias. Photograph: courtesy of the New York University excavations at Aphrodisias.

purchase or left until after their death. The epigraphic evidence shows that these objects were sometimes even exchanged between families. One example from the city, originally produced with four roughed-out busts on its façade, was ceded from one family to a married couple who then completed the middle two busts with their portraits; the number of busts suggests this was a commission that for some reason never got used and so was sold on.<sup>95</sup> If the purchaser did choose to leave these portraits for later finishing then any number of reasons might explain their incompleteness: negligence on the part of the heir, or even the death of the heir; perhaps the context in which the sarcophagus was erected prevented its finishing. Alternatively, there is the intriguing possibility that some of these blank portraits were never intended to be finished, their blankness an expression of ‘collective and spiritual values’.<sup>96</sup> Purchasing a sarcophagus, like buying a plot of land, building a tomb, or making a will, was part of the process of planning for death. Some tomb-buildings were even built around sarcophagi – the large sarcophagus in the so-called Tomb of the Pancratii on the Via Latina, for example, is too sizeable to have been placed there after the tomb’s construction.<sup>97</sup> Individuals often purchased multiple sarcophagi. At Tyre local notables jostled for space in the crowded necropolis, reserving plots and sarcophagi for themselves and their families; a murex fisherman (and hence

<sup>95</sup> Işık 2007, no. 6; see Reynolds and Roueché 2007, 152–3.

<sup>96</sup> For a summary of these reconstructions, see Koch and Sichtermann 1982, 611–4, and Huskinson 1998, 143–5.

<sup>97</sup> Coarelli 1981, 140–2.

probably also a purple-dyer) named Heraclitos reserved three sarcophagi in his name.<sup>98</sup> It was common for them to contain more than one body. All of the examples from Söğütlüçeşme near Kadıköy (ancient Kalchedon) which give appropriate details in their inscriptions commemorate multiple individuals, usually of the same family.<sup>99</sup>

Although it may have been the norm, patently not all sarcophagi were purchased during the lifetime of the deceased. As Huskinson has noted, in the case of children's sarcophagi in particular there would not have been time to commission one from scratch.<sup>100</sup> Presumably certain workshops specialised in producing children's sarcophagi to stock, typically with generic scenes; this was the kind of defined market, as discussed above, that made production to stock feasible. However, we should also be open to the idea that simply because an individual died suddenly did not mean their monument had to be purchased fully-finished. The late fourth-century sarcophagus of Catervius from the cathedral in Tolentino mentions that forty days passed between the death of the individual commemorated and his burial inside the sarcophagus.<sup>101</sup> Where Catervius' body was in the meantime is unclear but this raises the possibility that corpses intended for burial in a sarcophagus could be interred elsewhere first, perhaps in a wooden or lead coffin. The possibility that corpses were not interred in their final resting place immediately is even hinted at in a passage of the *Digest* which talks of bodies being held in one place for transferral elsewhere later.<sup>102</sup> Even if this was an extreme case there was still time between the death of an individual and their burial, and even after their burial further carving could have been carried out in the necropolis. A chest with pre-worked strigillated panels bought from stock could probably be personalised with figurative scenes relatively quickly by a team of sculptors. The ideas of production to stock and consumer choice, therefore, are not always mutually exclusive.

## Conclusions

'Systems changed and methods doubtless changed; and right down the line, down to the individual workmen, it would be wrong to expect absolute uniformity and absolute standardisation.'<sup>103</sup> Ward-Perkins was well aware that

98 See Chéhab 1984 and 1985, no. 1341–2, 4950 and 4864.

99 See Asgari and Fıratlı 1978, 32–4; in all but one case, however, more skeletons were found inside the sarcophagus than there were individuals listed in its inscription.

100 Huskinson 1996, 79.

101 See Märki-Boehringer et al. 1966, 39, and Koch 2000, 79.

102 *Digest* XI.7.42.

103 Ward-Perkins in his Fourth Shuffrey Lecture, see Dodge and Ward-Perkins 1992, 39.

his model did not explain everything. Between customer and producer any number of relationships could exist. At every stage of the production process changes could be made, specifications altered, or complications arise. Equally, from quarry to finished article any single sarcophagus could follow a number of different trajectories. There is no single, one-size-fits-all, model that can adequately account for this heterogeneity. The decisions of innumerable individual customers determined the pattern of sarcophagus production. It is not a question, therefore, of either 'production-to-stock' or 'production-to-order', 'mass production' or 'small-scale production', 'industry' or 'craft'; the evidence is more nuanced than these dichotomies suggest. Instead it is helpful to think about what we mean by these terms and what the logic behind different modes of production was. Above all, we need to question many of our assumptions about sarcophagus production, what was normal and what was not. For instance, it is unclear what proportion of sarcophagi were produced in response to definite as opposed to indefinite demand but there are good reasons to doubt that production-to-stock was the norm; only in certain circumstances did it make sense. Equally, viewed against the broader background of the ancient economy, the notion that sarcophagus production was dominated by a handful of mega-producers becomes questionable.

The controversial notion of production-to-stock has somewhat dominated most discussions of sarcophagus production. Mass production – the large-scale production of standardised objects – and production-to-stock are not the same thing; one is not necessarily a symptom of the other. The division of labour between the quarry-based workshops, producing roughed-out chests, and the sculpting workshops, more closely connected to the customer and responsible for finishing these pieces, is suggestive of a level of specialisation that must have helped to increase productivity. This does not, however, equate to production-to-stock. The stimulus appears to have come from the customer and the sculpting workshop; the quarry-based workshops responded to their requests. Specialisation rendered both sets of workshops more efficient and better able to respond to demand. Therefore, though Roman sarcophagus production bore little similarity to modern industrial production, it was highly articulated, specialised, and responsive. Most importantly, it relied on the cooperation and interaction of individuals across large distances. From this perspective it adds significantly to our understanding of the connectivity, physical, cultural and artistic, of the Roman Mediterranean.

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